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MidTerm Overall Evaluation Report

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TITLE: Distance Learning: Has the training culture kept up with the technology available?

1. ACCOMPLISHMENTS:

The US Army School of Aviation Medicine (USASAM), in concert with the Center for Total Access (CTA), has developed a study comparing the effectiveness of computer-based learning versus traditional classroom didactic instruction, as measured by a standardized post-test. The accomplishments of the project to date include the following: Development of web-based, interactive course modules utilized to provide the DL instruction. These modules were based upon PowerPoint presentations that are given to resident students at USASAM. Development of a prototype course module interface. Alpha (focus group) testing was performed at the Army's Operational Aeromedical Problems Course (OAP) in Norfolk, Virginia. Beta testing was conducted at the US Army Flight Surgeon Primary Course at Fort Rucker. Internet domains have been registered at: www.avnmed.ha.osd.mil and at www.avnmed.org. Web sites were created on both the .mil and .org domains to allow access from home, as well as clinic and deployed environments.

Methodology decisions included utilizing a design for 800 X 600 monitor size, and to make the interface as simple as possible to use, for "non-web savvy" users. The Macromedia Flash technology was chosen to deliver content in small file sizes to minimize download time. Lessons learned from alpha testing resulted in the creation of a navigation system that allows students to move back and forth from one slide to another, as well as scrolling through the presentation, or "jumping" back to a previous, non-sequential slide. In addition, users are able to interact with courses on-line, can read material or print it for later study, in concert or independent of web site. This affords greater flexibility to the end user in choosing the conditions under which he/she learns optimally. End users have access to all support documentation (regulations, policies) in PDF formats, and web links to related resources are available directly from the on-line course materials. Course modules were designed in a manner that allows instructors at USASAM to edit course content through a web access, enabling them to update course materials in a timely fashion. Local IRB approval was obtained in May 2000 from EAMC. MEDCOM IRB approval was obtained in August 2000. A preliminary study was conducted on 3 October 2000. The resident flight surgeon course was randomly divided into two groups, a "study" group of 26 DL students, who worked on computers at two sites, and a "control" group, of 19 students who were taught in a classroom. The same material was covered in both venues, and the test questions were not chosen until after the instruction, so as to avoid instructor bias. Data are currently being analyzed for statistical significance. The DL course students had an average score of 89%, while the classroom students had an average score of 90%.

2. PROBLEMS:

The principal problem encountered in the conduct of this project centered around difficulties developing script-based DL classes from a traditionally didactic style block of instruction. While the instructors at USASAM are facile in platform-based instruction, converting that instruction to the written word, in a fashion that was easily and accurately processed by the student, proved challenging. The process required multiple editing steps, to ensure the lesson was both technically and grammatically sound. This process was time consuming, and competed with the myriad other duties our busy instructor/writers. The ultimate product was excellent, but the process took considerably more time to execute than originally planned. There were also some technical difficulties secondary to security issues. Existing firewalls hindered the abilities of the USASAM staff to review CTA developments. This slowed decision making with respect to design choices and clarification of the author's intent is several of the lessons. USASAM access to products in development will be more readily available in the second half of the project.

3. LIFE-CYCLE:

The process of producing script-based classes has been streamlined, as talents and abilities have surfaced among the staff. This decrease the time required to convert a didactic lecture to a DL lesson. Flight Surgeon

course modules will be available on-line, to allow those flight surgeons in the field to access the courses for review and/or "just in time" training (e.g. before a deployment), and data will be collected from those cyber students. Code has been written for the servers at CTA that will allow a more expeditious capture of demographic information from students who register from remote sites. The plan for the January Flight Medic class is to have the study group register and take the lessons on-line, as opposed to the CD method utilized for the flight surgeon course in October. The preliminary results of the first study group will be presented at the AMSUS conference in November 2000. A web interface will be developed to allow USASAM instructors to update content and extract student performance data, which can be used to evaluate the effectiveness of the courses.

4. DELIVERABLES:

The principal benefit from this study is the ability to enhance readiness through the timely, effective, and standardized training of aeromedical healthcare providers. The prospective flight surgeon, aeromedical physician assistant, and flight medic, will be able to complete training modules from their home station, prior to attending the course. This will allow the in-residence time in the course to be shortened, minimizing time away from patient care, thus improving access to care for patients, due to increased provider availability. In addition, the previously trained aeromedical clinician who has not recently practiced aviation medicine, can be refreshed just prior to deployment, and in dire situations, even during deployment, providing "just in time" training. The other major benefit of this study is that it will help tease out which areas of instruction are best suited to distance learning. It is intuitive that different students best learn in different ways, and various subjects lend themselves to automation, while others do not. This study will show, by means of an objective post-test, which type of lessons lend themselves to digitization. This will allow AMEDD educators to focus precious IM resources on those courses which are most appropriate to conversion to DL.